Backgrounder

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IRAN: The Nuclear Threat

Author: Esther Pan

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What is the nuclear threat from Iran?

Iranian officials claim they are pursuing nuclear technology for peaceful civilian purposes only, such as generating electricity. But most i proliferation experts suspect the fundamentalist Muslim theocracy is using its nuclear program to enrich uranium to higher levels than n civilian nuclear-energy production and secretly trying to manufacture nuclear weapons.

What is the status of efforts to rein in Iran's nuclear program?

Since the revelations of Tehran's nuclear ambitions became public in 2002, the United Statesand other countries have been pressuring I program. TheUnited Statesrefused to deal directly with Tehran, but the European Union began negotiations to reach a diplomatic solutio standoff. In late 2004, U.S. officials agreed to support European efforts. In November of that year, Iran negotiated a deal with Britain, Fr Germany: The Europeans promised to give Iran economic incentives and assistance with its civilian nuclear program, and Iran promised uranium enrichment.

What has Iran done recently to attract world suspicion?

After Iranian dissidents blew the whistle in 2002, Tehran admitted withholding information for nearly twenty years from the Internation Energy Agency (IAEA), the United Nations' (UN) nuclear watchdog, about aspects of a uranium-enrichment program. Mahmoud Ahme new president, said after he was elected in June that Iran had a right to a nuclear program. In August, Iran also resumed sensitive nuclea

of its facilities, bringing two years of negotiations with the European Union on its nuclear program nearly to collapse.

How can a civilian nuclear-energy program be transformed into a program to build nuclear weapons?

Under the terms of the Nuclear Non-Proliferation Treaty (NPT), which governs nuclear-energy use around the world, any nation can enr for civilian nuclear-power reactors. Uranium enrichment is a critical part of both nuclear energy and nuclear-weapons programs. During enrichment process, naturally occurring uranium is converted into nuclear fuel. Depending on its enrichment level, this fuel can power e plants or, in a more refined state, nuclear weapons. Under Article IV of the NPT, which Iran ratified in 1968, a country can develop its nu capacity under a legal civilian program. Then the country could give ninety days' notice that it intends to drop out of the NPT, convert its program to a nuclear-weapons program, and declare itself a nuclear-armed power.

What has Iran done to advance its nuclear program?

Its program has facilities considered legal under international agreements—that is, declared to the world and open to IAEA inspections—a that were either kept secret or are suspected of hosting activities not permitted by international agreements.

The legal facilities include:

- A light-water commercial nuclear reactor at Bushehr, a city on the Persian Gulf coast of southwestern Iran. Iranian officials say the faci be Iran's first operational reactor when it opens in 2006, will use nuclear energy to generate electricity only. Russia helped build the $8 reactor and signed a deal with Iran March 1 that guarantees a supply of Russian fuel for Bushehr. Russia also agreed to remove all of Bu fuel to prevent its use in an illicit nuclear-weapons program. The United States opposed the deal. Experts say Bushehr will produce enc fuel—which can potentially be reprocessed to produce plutonium suitable for fueling nuclear weapons—for about thirty atomic bombs
- Several small research reactors, which are not considered proliferation risks because they produce only very small amounts—grams, no nuclear material.

The facilities that were previously undisclosed or host suspect activities include:

- **Isfahan.** The uranium-conversion facility at Isfahan in central Iran is capable of converting yellowcake into uranium hexafluoride (UF in centrifuges to produce weapons-grade uranium. In May, Iran revealed for the first time that it had used the Isfahan facility to conver tons of yellowcake into the gas uranium tetrafluoride (UF-4), a precursor to UF-6.
- **Natanz.** Many experts suspect the UF-6 produced at Isfahan is taken to an enrichment facility at Natanz in central Iran, which was sec Iranian dissidents revealed its existence in August 2002. There the gas is enriched—by being spun in high-speed centrifuges—to the rel level required to fuel electricity-generating power plants or to the higher level needed for nuclear bombs.

  There are at least two plants at Natanz, says Charles Ferguson, a nuclear expert and the science and technology fellow at the Council or Relations. One is a small-scale pilot plant that was likely used to test centrifuges and enrich small amounts of uranium; the other facilit commercial-scale plant able to enrich much larger amounts of uranium. According to information from IAEA investigations, Iran has c neither the pilot-scale nor the commercial-scale enrichment plants, although the pilot-scale plant houses more than 100 centrifuges. A commercial-scale plant would have as many as 50,000 of that type of centrifuge, Ferguson says. After the 2002 revelations, Iran admit existence of the Natanz facilities and allowed IAEA chief Mohammed ElBaradei to tour them in February 2003. In August 2003, IAEA found samples of highly enriched uranium, which Iran is not allowed to have under the NPT, on some of the centrifuges at Natanz. Teh the centrifuges—which were likely purchased from the network of rogue Pakistani nuclear scientist A.Q. Khan—were already contamin material when Iran received them. An independent panel of experts confirmed this claim in August; nonetheless, a U.S. State Departm said August 23 that the report didn't prove Iran 's innocence, saying there are still "unresolved concerns" and "open questions" about th nuclear intentions.

- **Arak.** Experts say the planned heavy-water research reactor is about five years from completion. Once the plant is operational, it could enough plutonium for about one nuclear bomb per year.

What's the background of Iran's nuclear program?

Iran has long pursued nuclear energy and weapons, experts say. "The shah had these aspirations," says Ashton Carter, a former assistant

defense for international security policy and the Ford Foundation professor of science and international affairs at Harvard University. Sh
Mohammed Reza Pahlavi governed Iran from 1941 to 1979, except for a brief period in 1953. In the 1970s, Iran had a fledgling program to
nuclear weapons even as it negotiated to buy nuclear reactors from France, Germany, and the United States, experts say.

Is there public support in Iran for a nuclear program?

Yes, experts say, and it is widespread and enthusiastic. Many Iranians feel, and their leaders reiterate, that as a great state, Iran should ha
nuclear technology, experts say. Iranian officials have repeatedly defended their right to a nuclear-energy program, also citing possible th
Israel and U.S. forces in the region.

Would the United States use force to stop Iran's nuclear activities?

It's unlikely at the moment. The U.S. military is already stretched thin in Iraq, Afghanistan, and elsewhere, and there would be little dom
for another war, many experts say. But Bush said August 13 that "all options are on the table" regarding Iran. "If you tried and failed in ne
—really tried and failed—force is something to consider," says Robert Gallucci, a former ambassador-at-large for nonproliferation issues a
Georgetown University School of Foreign Service. One possibility is that the United States or Israel could carry out a disabling pre-emptiv
Iran's nuclear facilities. However, Iranian officials have issued strongly worded warnings against such an attack, saying they would retalia

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